

CHILD RESISTANT LIGHTER

(Patent No.: ZL 97 2 19832.6)

The Illustration Of Patent for New-style Utility Lighter

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Owner of patent: Lei HouChong

Designer: Lei HouChong

**Add:510room,4floor,#6,BinJiangmid-road,
Fo Shan City, Guang Dong.**

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Agency of patent: Fo Shan Patent Agency.

Agent: Deng Ying

1 Page for Claim of Right Requested

**2 Pages for Illustration, 4 Pages for Drawings
attached**

Name of New-style Utility Lighter: Child Resistant Lighter

Summary:

The Child Resistant Lighter consists of gas tank, shield, gas valve device, bracket, device for spark arising and child resistant mechanism. The child resistant mechanism is setup at both side of spark wheel in two ways. One way is to setup the side wheels on the coaxial of the spark wheel, the side wheels matched up to the aperture of the rotating axes. The diameter of the side wheels is larger than the outside diameter of the spark wheel; the other way is: To make the top of shield extend to cover both side of the spark wheels, and its height is equal or longish to the top of the park wheel. The whole ignition for this lighter can be completed by only one action. Its structure is simple and easy to operate.

Claim of Right Requested

1.This is a Child Resistant Lighter, included gas tank, shield, gas valve device, bracket, device for spark arising .The device for spark arising consist of the spark wheel, rotating axes, flint, flint spring. The Child Resistant mechanism setup at both side of the spark wheel, and its feature is: To assemble the side wheels on the coaxial of spark wheel, the side wheels matched up to the aperture of the rotating axes, and the diameter of the side wheels is larger than the outside diameter of the spark wheel.

2. This is a Child Resistant Lighter, included gas tank, shield, gas valve device, bracket, and device for spark arising. The device for spark arising consist of the spark wheel, rotating axes, flint, flint spring. The Child Resistant mechanism is setup at both side of the spark wheel, and its feature is: To make the top of shield extend to cover both side of the spark wheels,

and its height is equal or longish to the height of spark wheel.

3. The feature of this lighter by claim of right requested 1 or 2 is with two rotating axes, one part of the two rotating axes is tightening connected with the intra aperture, the other part is setup in the hole of axle on the bracket and match up to the aperture of the rotating axes.

Direction For Child Resistant Lighter

This new-style utility lighter is with liquid gas as fuel material, especially with the child resistant mechanism.

In order to avoid the harms and fire accidents by the children play the lighter and the grown unconsciously operate to ignite, many countries have successively made a rule that the lighter sold on their homeland must be with the child resistant mechanism. In recently years, various lighters with child resistant have been sold on the market incessantly, In rough, It can be divided into two kinds for these child resistant lighter by the time of ignition actions. One type is: the ignition action for the lighter should be completed in two actions. The feature for this kind of lighter is: more safety, but difficult to operate and the customer is difficult to accept it. The other type is: the ignition action without obviously two actions. According to assuring the safety of these lighters as the preconditions, the feature for this kind of lighter is with the simple structure and easy to operate, the customer easy to accept.

The purpose for this new-style utility lighter is for making the lighter with the new-style child resistant mechanism by only one action to complete the whole ignition.

It works as follows: The lighter included gas tank, shield, gas valve device, bracket, and device for spark arising. The child resistant mechanism is setup at both side of spark wheel in two ways. One way is: To assemble the side wheels on the coaxial of the spark wheel, the side wheels matched up to the aperture of the rotating axes. The diameter of the side wheels is larger than the outside diameter of the spark wheel. The other way is: To make the top of shield extend to cover both side of the spark wheels, and its height is equal or longish to the top of the spark wheel. When igniting, pressed the child resistant by thumb and pressed down the spark wheel by force till the skin of the thumb which working between the child resistant device and spark wheel became deforming, the deforming thumb impacted the spark wheel directly and rotated the spark wheel to rub flint for arising the spark to ignite. If in normal ignition way, using the thumb work between the child resistant device and the spark wheel, though the thumb can be deforming, but for

the force which impacting on the spark wheel and its both side child resistant devices by the deforming thumb is not enough heavier to rotate the spark wheel, causing unable to rub the flint for arising the spark to ignite. This new-style utility lighter can complete the whole ignition by one action, for it should increase the pressure and impact on the spark wheel with intent when igniting, it can avoid to play with fire by children as well as be safety to grown men by igniting without intent.

The new-style utility lighter with the advantages as follows:

1. Easy to operate. When igniting, with intent to increase the force of pressing down and pay attention to the focus of the force, the whole ignition process can be completed by one action.
2. The structure is simple and easy to operate, and the cost of producing is cheap.

Figure 1 is the drawing for the structure of the instance 1 in practice.

Figure 2 is the left view for figure 1.

Figure 3 is the drawing for the structure of the instance 2 in practice.

Figure 4 the left view for figure 3.

The following is further to illustration by practical instance and drawing attached.

Instance 1: refer to the figure 1 and 2, this child resistant lighter consist of gas tank, shield 5, gas valve 3, bracket 10, the device for arising spark and the child resistant mechanism. The gas tank included the fuel storage 1 and the cover of the storage 2. The gas valve device 3 is setup on the cover of the storage 2. The gas valve included the nozzle 6, adjust ring 4 and lever 9 for unlocking the valve. The pivot of the level 9 is setup on the bracket 10. The device for arising spark included the spark wheel 7, rotating axes 12, flint 8 and flint spring 11. The whole device for arising spark is setup on the bracket. The child resistant mechanism which both side wheels 13 is respectively setup on the rotating axes 12 for both side of the spark wheel 7 and match up to the aperture of the rotating axes 12. There are two rotating axes 12, one part of the two rotating axes is tightening connect the intra hole of the spark wheel 7, and the other part is setup inside the hole of the axes of the bracket 10 and match up to the aperture of the hole. Two rotating axes 12 and the spark wheel 7 can rotate together on the bracket 10, and it can't make the rotating axes 12 lead the spark wheel 7 to rotate together when the side wheel 13 be rotated. The diameter of side wheel 13 is larger than the outside diameter of the spark wheel 7. When igniting, the operator's thumb press on 13a of the side wheel 13 and 7a of the spark wheel 7, and to rotate. In normal ignition way, the force pressed on the side wheel 13 and spark wheel 7 is not enough heavier, and if the ignition is mainly by rotating the side wheel to lead the spark wheel, it will unable to ignite for the rotating side wheel can not lead to rotate with the

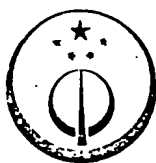
rotating axes and spark wheel. Only to change the normal ignition way, impacting a heavier force on the side wheel 13a and the spark wheel 7a to make the thumb became deforming and with intent to rotate the spark wheel 7 by the thumb, the spark wheel 7 rotating and rubbing with the flint 8 to arise the spark, then quickly to press down the level 9, elevate the nozzle 6, unlock the gas valve and release the fuel to ignite. After igniting, loosening the level 9, the nozzle 6 will be resetting by the bounce of the gas valve 3, and leading to reset the level 9 at the same time, the lighter recover in the initial condition.

Instance 2: refer to the figure 3 and figure 4, the instance cancelled the side wheel 13 in the instance 1. The shield 5 is instead of the child resistant mechanism. The top of the shield 5 extended to 5a for both side of the spark wheel 7, its height is equal or longish to the top height of the spark wheel. The rest structure is the same as the instance 1. When igniting, the thumb should press the spark wheel 7a and the shield 5a, with intent to rotate the spark wheel 7 directly to ignite. If in normal ignition way, it unable to ignite for without enough force and can't to rotate the spark wheel 7.

311028 号

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实用新型专利证书



实用新型名称：安全打火机

设计人：李濠中

专利号：ZL 97 2 19832.6

专利申请日：1997 年 7 月 12 日

专利权人：李濠中

该实用新型已由本局依照中华人民共和国专利法进行初步审查，
决定授予专利权。



局长

姜颖

1999 年 1 月 16 日

311028 号

专利号：ZL 97 2 19832.6

本实用新型已由本局依照专利法进行初步审查，决定于 1999 年 1 月 16 日授予专利权，
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中华人民共和国专利局

(BJ)第 1452 号

权 利 要 求 书

1、一种安全打火机,包括机体、防风罩、气阀装置、中间支架、火花发生装置,火花发生装置由打火轮、转轴、火石、火石弹簧组成,安全装置设在打火轮的两侧,其特征在于打火轮的两边同轴装上侧轮片,侧轮片与转轴间隙配合,其直径略大于打火轮的外径。

2、一种安全打火机,包括机体、防风罩、气阀装置、中间支架、火花发生装置,火花发生装置由打火轮、转轴、火石、火石弹簧组成,安全装置设在打火轮的两侧,其特征在于防风罩顶部延伸至盖住打火轮两侧,其高度等于或略大于打火轮顶部高度。

3、根据权利要求1或2所的安全打火机,其特征是转轴有2根,两转轴的一端与打火轮的内孔紧固联接,另一端装在中间支架的轴孔内并与轴孔间隙配合。

说明书

安全打火机

本实用新型涉及一种以液化石油气为燃料的火石打火机，特别是设有安全装置的打火机。

为防止儿童使用打火机以及成人无意识打火造成烧伤及火灾事故的发生，许多国家都先后规定在其国内市场上销售的打火机必须设有安全装置。近年来各种各样的安全打火机不断被推向市场。如果按打火动作的次数来分的话，这些安全打火机大致可以分为两类：一类是打火动作需两个动作才能完成。这类打火机的特点是安全性较高，但操作麻烦，消费者不易接受。另一类是打火没有明显的两个动作。这类打火机的特点是在保证安全性的前提下结构简单，操作方便，消费者易于接受。

本实用新型的目的是提供一种只需一次动作完成打火过程的设有新型安全装置的打火机。

本实用新型是这样实现的：打火机包括机体、防风罩、气阀装置、中间支架、火花发生装置。火花发生装置由打火轮、转轴、火石、火石弹簧组成。安全装置设在打火轮的两侧。该安全装置可以有两种方式，其一是在打火轮的两边同轴装上侧轮片，侧轮片与转轴间隙配合，其直径略大于打火轮的外径，其二是将防风罩顶部延伸至盖住打火轮两侧，其高度等于或略大于打火轮顶部高度。打火时，用大拇指按在安全装置和打火轮上用力下压，使与安全装置及打火轮接触的大拇指皮肤产生变形，变形的皮肤直接作用于打火轮上，拨动打火轮摩擦火石产生火花点火。若按普通打火方式打火，即大拇指轻按在打火轮及其两侧的安全装置上，大拇指皮肤尽管也会产生变形，但因为作用在打火轮上的力较小，不足以拨动打火轮，也就不可能摩擦火石产生火花点火。故本实用新型只需一次动作便完成打火过程，但由于这种打火机打火时需要有意地增大按压力度，并且要有意地将力作用在打火轮上，这不仅可避免儿童玩火，而且对成人无意识打火也极具安全性。

本实用新型具有如下优点：

- 1、操作简便。打火时只需有意地增加下压力度和注意力的作用点，一次动作便可完成打火过程。

- 2、结构简单、制作容易，制造成本低。

图1是本实用新型实施例1的结构示意图，

图2是图1的左视图，

图3是本实用新型实施例2的结构示意图，

图4是图3的左视图。

下面结合实施例和附图对本实用新型作进一步的说明。

实施例1，

参照图1、图2，本安全打火机由机体、防风罩5、气阀装置3、中间支架10、火花发生装置和安全装置构成。机体由贮油槽1和油槽盖2组成。在油槽盖2上装有气阀装置3。气阀装置包括火咀管6、调节环4和阀门开启杠杆9。杠杆9的支点设在中间支架10上。火花发生装置由打火轮7、转轴12、火石8及火火石弹簧11组成。整个火花发生装置装在中间支架10上。安全装置即两片侧轮片13分别套在打火轮7两侧的转轴12上，并与转轴12间隙配合。转轴12有2根，两转轴的一端与打火轮7的内孔紧固联接，另一端装在中间支架10的轴孔内并与轴孔间隙配合。两转轴12和打火轮7一起可以在中间支架10内转动，而侧轮片13转动时并不能带动转轴12和打火轮一起转动。侧轮片13的直径略大于打火轮7的外径。当打火时，使用者的大拇指压在侧轮片13的13a处和打火轮7的7a处并转动。如果按照通常的打火方法，即压在侧轮片13和打火轮7上的力不大，并且主要是通过转动侧轮片带动打火轮打火的话，如上所述，由于侧轮片的转动并不能带动转轴和打火轮一起转动，所以无法打火。只有打破常规的打火方法，在侧轮片13a和打火轮7a上施加更大的压力，使大拇指的皮肤产生变形并且有意识地让这部份变形的皮肤直接拨动打火轮7，打火轮7转动与火石8摩擦产生火花。然后迅速压下杠杆9，挑起火咀管6，打开气阀将燃气点燃。用火后，手松开杠杆9，火咀管6在气阀装置3的弹力作用下复位，同时带动杠杆9复位，打火机回到初始状态。

实施例2，

参照图3、图4，本实施例取消了实施例1的侧轮片13，其安全装置由防风罩5取代。防风罩5的顶部向打火轮7的两侧延伸至5a处，其高度等于或大于打火轮的顶部高度。其余结构同实施例1。打火时，手指必须压在打火轮7a与防风罩5a处，并且有意识地直接拨动打火轮7，才可以打火。如按普通打火方法，没有足够的压力，则不能拨动打火轮7，从而无法打火。

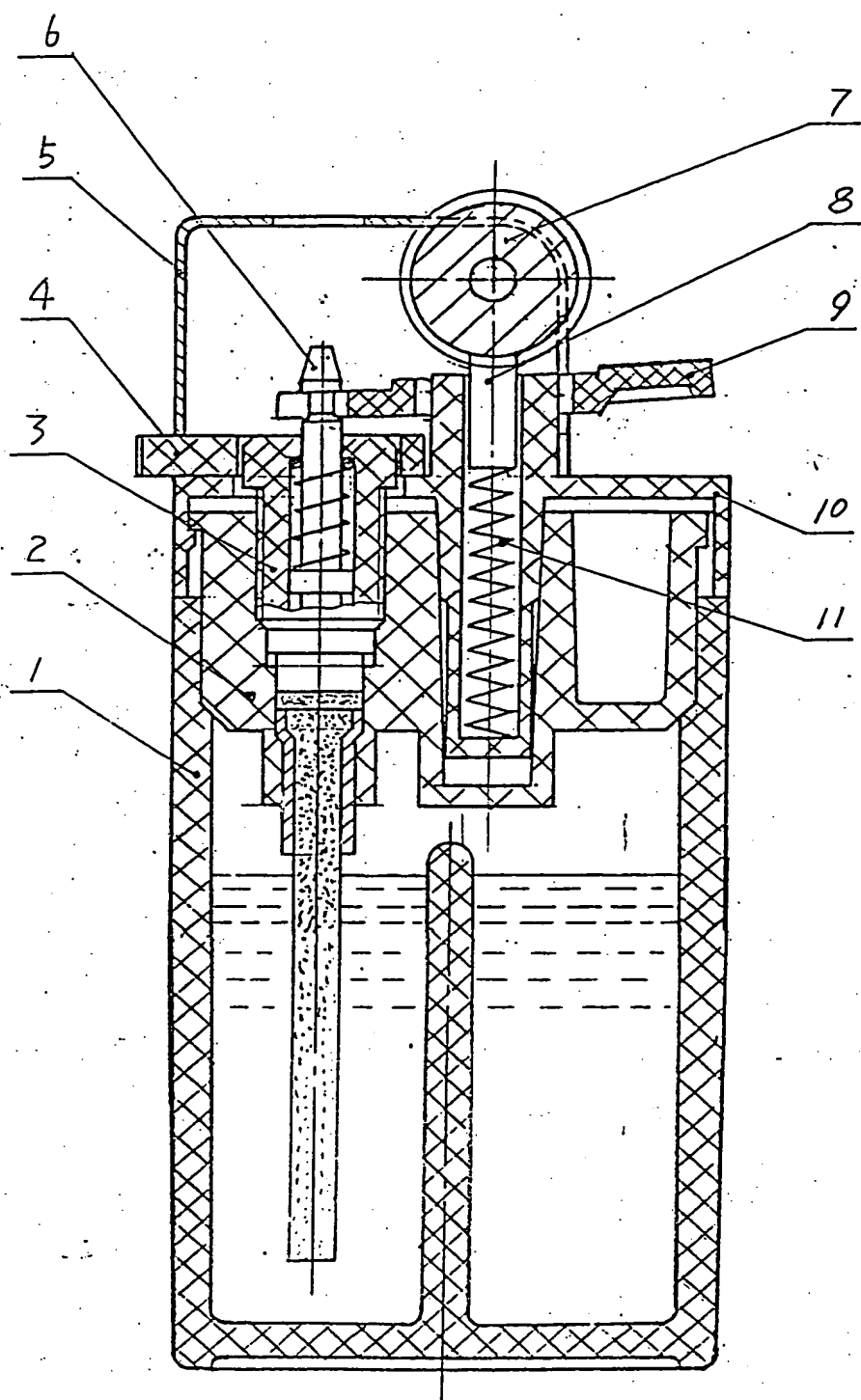


图 2

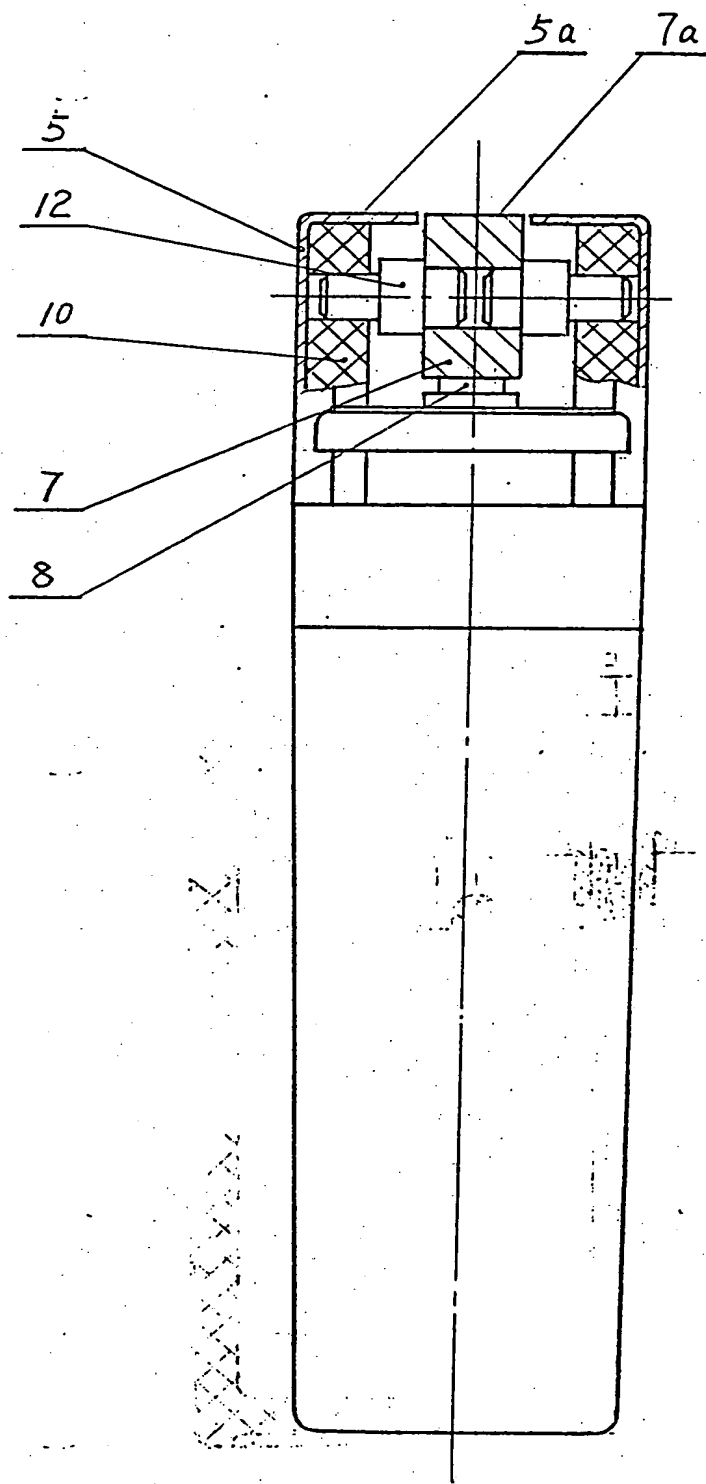


图 3

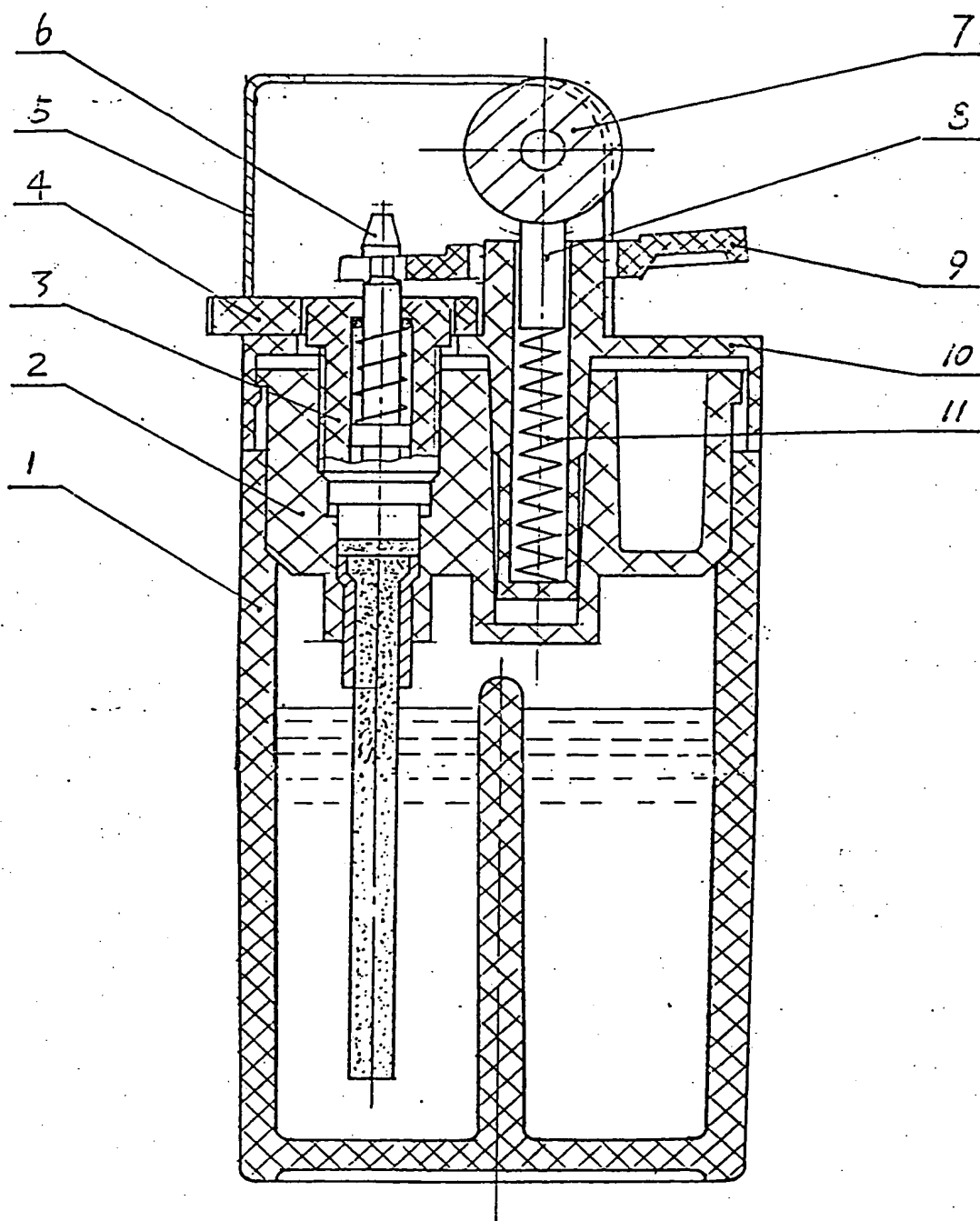


图 4